CLAIMS:

What is claimed is:

1. A process for preparing hydroxy fatty acid esters which are solid at room temperature and have improved melting behavior, comprising reacting, in the presence of an enzyme, alcohols having at least two primary hydroxyl groups, and a fatty acid component selected from hydroxy fatty acids, hydroxy fatty acid alkyl esters, and combinations thereof.

2. The process of claim 1, wherein said fatty acid component is a saturated hydroxy fatty acid or hydroxy fatty acid alkyl ester of the general formula R^a-COOR^b wherein R^a is a radical having hydroxyl groups and 12 to 24 carbon atoms and R^b is H or a saturated hydrocarbon radical having 1 to 6 carbon atoms.

3. The process of claim 1, wherein said fatty acid component is 12-hydroxystearic acid or an ester thereof with short-chain monofunctional alcohols having 1 to 3 carbon atoms.

4. The process of claim 1, wherein said alcohols are polyols of the general formula HO-R^c-OH, in which

R^c is $-CH_2-[CH(OH)]_k-CH_2-$;
$[-CH_2-CH_2-O-(CHR'-CH_2-O)_m-CH_2-CH_2-]_n$;
$-CH_2-CH(OH)-CH_2-(-OCH_2CH(OH)-CH_2)_p-$;
$-CH_2-C(C_2H_5)(CH_2OH)-CH_2-$; $-CH_2-C(CH_2OH)_2-CH_2-$ where
k is 1 to 4,

m is 0 to 20,

n is 1 to 5,

p is 0 to 15, and

R' is H or a short-chain alkyl radical.

5. The process of claim 4, wherein m is 0 to 10, p is 0 to 10 and R' is CH_3.

6. The process of claim 5, wherein p is 1 to 5.

7. The process of claim 4, wherein the polyols are ethylene glycol and the homolog series of polyethylene glycols based thereon, or glycerol and condensation products thereof.

8. The process of claim 7, wherein said glycerol is diglycerol, triglycerol or tetraglycerol.

9. The process of claim 4, wherein the polyols are 1,3-propanediol, 1,4-butanediol, 1,5-pentanediol, trimethylolpropane, pentaerythritol or sorbitol.

10. The process of claim 1, wherein the quantitative ratio of primary hydroxyl groups to carboxyl groups and/or ester groups is in the range from 2.1 mol : 1 mol to 1 mol : 1.1 mol.

11. The process of claim 1, wherein said enzyme is a lipase, esterase or protease.

12. The process of claim 11, wherein said lipase is an immobilized lipase.

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13. The process of claim 1, wherein the reaction is carried out at a temperature in the range from 20° to 110°C and under reduced pressure.

14. The process of claim 1, wherein the reaction is carried out in a fixed-bed reactor.

15. The process of claim 1 further comprising removing any water of reaction or alcohol of reaction which forms from said reacting step.

16. A technical mixture of hydroxy fatty acid esters which are solid at room temperature and have improved melting behavior, prepared in accordance with the process of claim 1.

17. A formulation comprising at least one regioselective hydroxy fatty acid ester which is solid at room temperature.

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